

Lecture 18 - Alternative science and world views

Manifestations of the early criticism of science and technology

- environmentalism (Carsons, Commoner, Fuller ...)
- new physics/science (Capra)
- alternative energy/economics (Schumacher)
- anti-science (Rifkin...)

Vocabulary & concepts

- Cartesian, material, reductionist
- vitalism, animism, spiritualism
- epistemology & ontology
- mysticism

I. Environmentalism

- Carson, Fuller, beginning
- takes different forms

Example: R Buckminster (Bucky) Fuller

- architect, designer, 1930s
- patents geodesic dome
- futurist
- became environmentalist and mystic

Major writings:

- *Designing a New Industry* (1945)
- *Operation Manual for Spaceship Earth* (1969)
- *Utopia or Oblivion: The Prospects for Humanity* (1969)
- *Approaching the Benign Environment* (1970)

Fuller, continued

- *Buckminster Fuller to Children of Earth*(1972)
- *Earth Inc.* (1973)
- *R. Buckminster Fuller on Education* (1979)
- *Humans in Universe* (1983)
- *Naga Cultural Origins in Diam and the West* (1988)
- *Cosmography: A Posthumous Scenario for the Future* (1992)

Environmentalism

- *Grass Roots Primer* (1975)
- *Green Alternative* (1987)
- *Our Earth Ourselves* (1990)
- *Green Lifestyle Handbook* (1990)
- *Design for a Livable Planet* (1990)

Fritjof Capra, fusion of physics and mysticism

- *Tao of Physics: An Exploration of the Parallels between Modern Physics and Eastern Mysticism* (1975)
- *Turning Point: Science and Society and the Rising* (1982)
- *Green Politics* (1984)
- *Uncommon Wisdom: Conversations with Remarkable* (1988)
- *Chut Plain Haeng Satawat* (1991)

The Tao of Physics

- Five years ago, I had a beautiful experience which set me on a road that has led to the writing of this book. I was sitting by the ocean one late summer afternoon, watching the waves rolling in and feeling the rhythm of my breathing, when I suddenly became aware of my whole environment as being engaged in a gigantic cosmic dance.
- Being a physicist, I knew that the sand, rocks, water and air around me were made of vibrating molecules and atoms, and that these consisted of particles which interacted with one another by creating and destroying other particles ...
- As I sat on the beach my former experiences came to life; I 'saw' cascades of energy coming down from outer space, in which particles were created and destroyed in rhythmic pulses; I 'saw' the atoms of the elements and those of my body participating in this cosmic dance of energy; I felt its rhythm and I 'heard' its sound, and at that moment I knew that this was the Dance of Shiva, the Lord of Dancers worshipped by the Hindus.
- To overcome the gap between rational, analytical thinking and the meditative experience of mystical truth, was, and still is, very difficult for me.
- In the beginning, I was helped on my way by “power plants” which showed me how the mind can flow freely; how spiritual insights come on their own, without any effort, emerging from the depth of consciousness...

***The Turning Point: Science, Society, and the Rising Culture* (1982)**

- After a time of decay comes the turning point. The powerful light that has been banished returns. There is movement, but it is not brought about by force.... The movement is natural, arising spontaneously. For this reason the transformation of the old becomes easy. The old is discarded and the new is introduced. Both measures accord with the time; therefore no harm results. (I Ching)

Questions raised by quantum mechanics

- mechanical ~ uncertain?
- clock ~ probable?
- laws of nature ~ human observation?

Turning Point (1982)

- Cartesian-Newtonian world view outmoded
- need a new “paradigm”
- holistic view of life
- biologic view of the universe
- technology must flow from human needs, not shape

Gary Zukav,

- *The Dancing Wu li Masters: An Overview of the New Physics* (1979)
- *The Seat of the Soul* (1989)

New Age Philosophy

- emphasis on the spiritual aspects of the universe
- rejection of rationalism
- new medicine, music, philosophies
- new “technologies” for a world filled with subtle forces and energies

E.F. Schumacher

- soft technology
- new science movement
- alternative energy

Small is Beautiful (1973)

- A Small is Beautiful: Economics as if People Mattered (1973)
- progress, development, growth replaced with smaller, appropriate, etc.
- brings people into consideration
- not science for sciences sake, but for the sake of people

Examples

- bread, bake locally or centrally?
- agriculture, small tractors or large?

E.F. Schumacher, writings

- *Small is Beautiful: Economics as if People Mattered* (1973)
- *Guide for the Perplexed* (1977)
- *Good Work* (1979)

Jeremy Rifkin

- *Who should play God: The artificial creation of life* (1977)
- *Entropy: A New World View* (1980)
- *Algeny* (1983)
- *Declaration of a Heretic* (1985)
- *Green Lifestyle Handbook* (1985)

Unibomber

- The Industrial Revolution and its consequences have been a disaster for the human race.
- They have greatly increased the life-expectancy of those of us who live in "advanced" countries, but they have destabilized society, have made life unfulfilling, have subjected human beings to indignities, have led to widespread psychological suffering (in the Third World to physical suffering as well) and have inflicted severe damage on the natural world.
- The continued development of technology will worsen the situation. It will certainly subject human beings to greater indignities and inflict greater damage on the natural world, it will probably lead to greater social disruption and psychological suffering, and it may lead to increased physical suffering even in "advanced" countries.
- We therefore advocate a revolution against the industrial system

The Psychology Of Modern Leftism

- critique of the leftist movements
- explanation
 - Feelings Of Inferiority
 - Over-socialization
 - The Power Process
 - Surrogate Activities
 - Autonomy

Sources Of Social Problems

- We attribute the social and psychological problems of modern society to the fact that that society requires people to live under conditions radically different from those under which the human race evolved and to behave in ways that conflict with the patterns of behavior that the human race developed while living under the earlier conditions.
- Among the abnormal conditions present in modern industrial society are excessive density of population, isolation of man from nature, excessive rapidity of social change and the break-down of natural small-scale communities such as the extended family, the village or the tribe
- continued analysis of human characteristics:
 - Disruption Of The Power Process In Modern Society
 - How Some People Adjust

The Motives Of Scientists

- standard view of science is wrong:
 - not curious about nature
 - do not serve humanity
- science is a surrogate activity
- science is also a source of power and personal advancement

Conclusion regarding science

- Thus science marches on blindly, without regard to the real welfare of the human race or to any other standard, obedient only to the psychological needs of the scientists and of the government officials and corporation executives who provide the funds for research.

The Nature Of Freedom

- By "freedom" we mean the opportunity to go through the power process, with real goals not the artificial goals of surrogate activities, and without interference, manipulation or supervision from anyone, especially from any large organization.

Freedom continued

- Freedom means being in control (either as an individual or as a member of a SMALL group) of the life-and-death issues of one's existence; food, clothing, shelter and defense against whatever threats there may be in one's environment.

Freedom, continued

- Freedom means having power; not the power to control other people but the power to control the circumstances of one's own life.
- One does not have freedom if anyone else (especially a large organization) has power over one, no matter how benevolently, tolerantly and permissively that power may be

exercised.

- Some Principles Of History

Industrial-Technological Society Cannot Be Reformed

- The foregoing principles help to show how hopelessly difficult it would be to reform the industrial system in such a way as to prevent it from progressively narrowing our sphere of freedom.

Reform impossible continued

- There has been a consistent tendency, going back at least to the Industrial Revolution for technology to strengthen the system at a high cost in individual freedom and local autonomy.

Reform impossible continued

- Hence any change designed to protect freedom from technology would be contrary to a fundamental trend in the development of our society.

Further arguments on technology

- Restriction Of Freedom Is Unavoidable In Industrial Society
- The 'Bad' Parts Of Technology Cannot Be Separated From The 'Good' Parts
- Technology Is A More Powerful Social Force Than The Aspiration Freedom
- Simpler Social Problems Have Proved Intractable

Revolution Is Easier Than Reform

- Control Of Human Behavior
- Human Race At A Crossroads
- Human Suffering

The Future Strategy

- Two Kinds Of Technology
 - Small-scale technology is technology that can be used by small-scale communities without outside assistance.
 - Organization-dependent technology is technology that depends on large-scale social organization.
- Favored former

Impact

- 1970 with the first Earth Day
- Locally:
 - 1972 Residential College
 - 1975, "alternative science" curriculum
 - Science for the People